



User's MANUAL

2007

TOPEX is a group of Romanian companies, founded in 1990, by 10 enthusiastic engineers experienced in telecommunications. Its activity is directed to the research, development and production of telecom equipment as well as service for them.

TOPEX becomes very quick the most important supplier of IT&C solutions for small to large companies as well as for telecommunications operators and providers in Romania. The company designs equipment for all existing mobile systems (GSM/GPRS, CDMA/EVDO, HSDPA), including 3G technologies.

TOPEX is represented all over Romania by a wide network of local distributors through which the promotion, administration and product maintenance are running.

Due to our innovation power, authentic flexibility, real respect for our partners and secure solutions that we provide TOPEX extended its business worldwide. Currently TOPEX delivers its products through its distributors to: Italy, France, Spain, Bulgaria, Greece, Niger, Russia, UK, Republic of Moldova, Turkey, Holland, etc.

In order to achieve effective and flawless manufacturing for its products, TOPEX has carefully organized its Research and Development Department along with its production facility. This allows TOPEX to have maximum control of all the processes involved in the complex operations related to high-technology electronic manufacturing. At the present time, the Research and Development Department counts 30 specialists and the trend is ascending.

TOPEX also considered the training and the service as part of the solutions it provides. Therefore, comprehensive trainings are organized at Topex Factory, complimentary for the company's clients. Service is also provided via Internet, as all Topex solutions are designed especially to allow this, at the lowest cost.

TOPEX has implemented the quality management system according ISO9001 standard certified by SRAC since 1997, respectively by IQNET since 2002. TOPEX become a sector member of I.T.U. (International Telecommunication Union) since 2001.

For more details please visit www.topex.ro

DEAR CLIENT!

TOPEX thanks for your choice; with VOXELL equipment you have made an excellent choice.

Purchasing the VOXELL equipment you have:

- ✓ Analog interface between a PBX and the 3G mobile network (3G 2100MHZ)
- ✓ Substantial savings at phone billing
- ✓ Capability to connect thus an analogue phone as well as a PBX trunk or a subscriber extension
- ✓ Wireless access to high speed Internet, using 3G 3G (W-CDMA) mobile network
- ✓ Excellent quality of a vocal signal
- ✓ Fully compatibility with a wide range of PBX exchanges, analog or digital
- ✓ Possibility to use together with others applications or data solutions, for instance SMS, GSM Phase 2+ supplementary services or data switching (HSCSD)
- ✓ Easy and quickly installation

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Revision E, April 2007.

1. About VOXELL!

VOXELL is a voice and data interface between PBX exchange and 3G mobile network of third generation (3G). VOXELL assures the wireless connection for voice and data connection and decreases the cost of fixed-to-mobile and mobile-to-fixed calls. VOXELL achieves a direct contact between a trunk or a local subscriber extension of a PBX exchange over 3G (W-CDMA) mobile network.

Using the automated routing program of the PBX, any call to a mobile, generated from a fixed phone subscribed to the PBX exchange will go out through the trunk on which VOXELL was installed. This way the fixed-to-mobile calls are converted into mobile-to-mobile calls. Thus you will pay only the mobile-to-mobile cost.


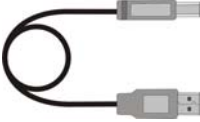
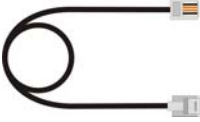

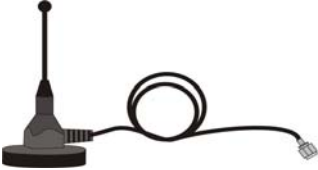

Also, for any call made from a mobile phone to the number assigned to SIM card that is comprised by VOXELL connected to a PBX exchange, you can call any local subscriber extension. This will be taxed as a mobile – to – mobile call.

VOXELL has two telephone interfaces; these are FxO and FxS types. VOXELL was conceived to assure a supplementary flexibility, because the VOXELL equipment can be wired to the PBX exchange in two ways: to a junction interface or a subscriber interface. This facility is very helpful when your exchange has only ISDN interfaces or there are no available analog trunks (all of them are used).

VOXELL is suited for using as WLL interface, this is the wireless connection for one or more telephone station belongs to your house or a factory to a public fixed network over a mobile network.

Using VOXELL you have, also, a data interface for your needs. You can connect a computer to USB port for internet access over 3G network.

2. PACKAGE CONTENT

1.		VOXELL equipment
2.		USB cable for connecting to PC
3.		Flat telephone cable with RJ11 muffle, for connecting to PBX
4.		Adapter for power supply 12Vdc / 2,08A
5.		Antenna with RF connection cable and magnetic base
6.	✓	Assembly Kit
7.		CD or diskettes with USB and O.A.M drivers
8.	✓	User's Manual
9.	✓	Warranty Certificate

3. VOXELL - INSTALLATION

For installing the equipment accomplish the following steps:

- configuring and installing the SIM card
- connecting the equipment
 - indentifying the connectors
 - connecting the cables and antenna
 - connecting a DTMF phone
 - powering the VOXELL
- setting the PIN or PUK code, if is required

3.1. Configuring and installing the SIM card

VOXELL interface works with suited SIM cards for GSM/GPRS/3G operators to which you want to connect.

Configuring SIM card

VOXELL works with a SIM card that must be activated by GSM/GPRS/3G operator. The SIM card must be configured before it is inserted into the VOXELL slot. For configuring the SIM card use a GSM cellphone.

Available configurations:

» *PIN CODE REQUEST* – if is disabled (from mobile phone menu) *PIN CODE REQUEST* security option, then will not ask to introduce it. Alternatively, the PIN code can be enabled and you have two possibility for its inserting:

1. dial PIN code from fixed phone, connected to VOXELL
2. use the configuring program - Operating, Administration and Maintenance program (delivery on CD)

If you use the second variant the PIN code introduce by you, this will be stored by equipment.

! *If the „Change PIN Code” is enable, VOXELL will generated a new PIN Code, unknown for user, so we recommend you disable this option.*

» *Disable GSM services* – GSM operators offers you different supplementary services for calls (divert calls, vocal messages). When you use the VOXELL interface is recommended that these options to be disable, because they are available only with cost.

» *Disable Roaming* – is required to disable the roaming services because VOXELL was designed for working with stationary PXS exchange.

Inserting the SIM card

The SIM card must be inserted into the special slot of VOXELL.

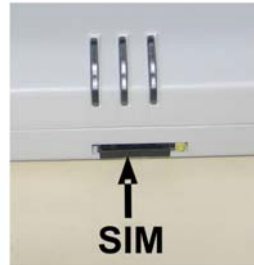
The slot of SIM card is located on top right side, under the status LED's.

For inserting or extracting the SIM card use the mobile holder for SIM.

Push the little yellow button for activating the holder.

Handle with care the inserting or extracting the SIM card.

! When inserting or change the SIM card VOXELL must be powered off.

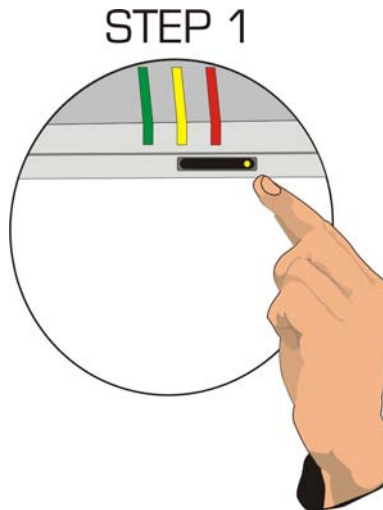


For inserting the SIM card follow the next steps:

1. Push the little yellow button for taking off the SIM carrier.

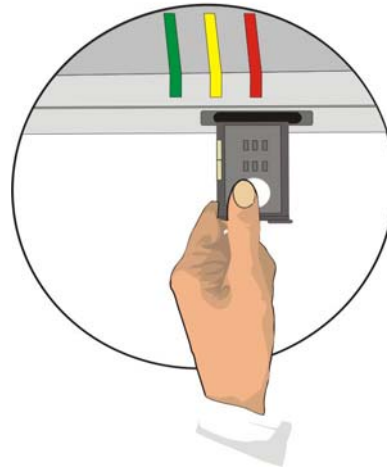
Note: Because its small dimensions, you can push the button using an object that has hard edge, such as a screwdriver.

Note! Because it's reduced dimensions, the button can be pushed with sticking object (keys, pencil, screwdriver, etc)!

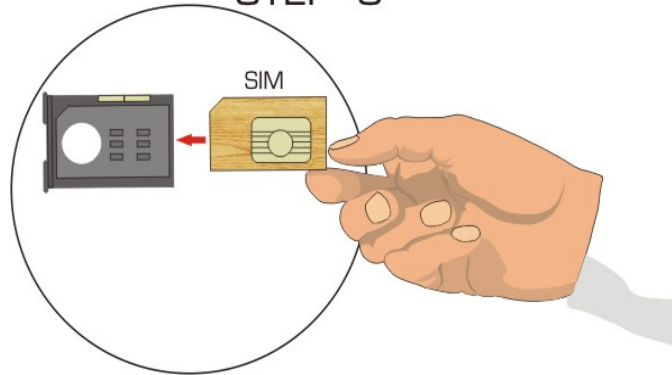


2. Pull out the holder (the SIM support)!

STEP 2



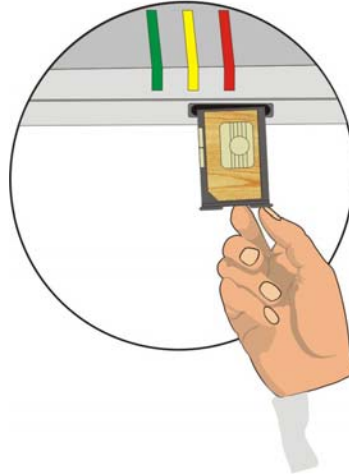
STEP 3



3. Insert the SIM card into the holder – the cut (notched) corner must be orientated upwards and the side with contacts toward you

4. Insert the holder with SIM card back into the slot!

STEP 4



Note 1: The described operation must be achieved also when you want to change the existing SIM card with a new SIM card.

Note 2: When the VOXELL equipment is started and includes a SIM card that has the „PIN CODE REQUEST“ option enable, VOXELL sends to SIM the code that was stored. If this code is different from the SIM code VOXELL switches into „mode of waiting for PIN code“ from telephone interface. Now you may dial the code from DTMF phone connected to the equipment or using the O.A.M. software.

As an alternative VOXELL can be connected to a trunk of the exchange and the PIN code will be entered from an office phone. First dial the required code for forced engaging of that trunk and then enter the SIM code.

If the PIN code was sent incorrectly for three times to SIM, the SIM becomes inactive. For unlocking you must use the PUK code.

VOXELL requires the inserting of PIN code or PUK through LED blinking, labeled with „J“, and the tonalities that you hear in receiver.

3.2. Connecting the equipment

3.2.1. Identifying the connectors


Connection panel is on the bottom side of the case.



Figure 1: Identifying the connectors

FxS – Subscriber: RJ11 muffle is suited for connecting the telephone cable to an analog phone or an analog trunk of PBX exchange

FxO – Office: RJ11 muffle is suited for connecting the telephone cable to FxO interface of PBX exchange

 – (USB): USB-B muffle, female, for connecting the USB cable to a PC

PWR – Power, round muffle, JACK type for connecting the power supply adapter (delivery in package).

The FME connector is suited for connecting the GSM antenna and superior side on the upper side of the VOXELL equipment!

3.2.2 Connecting the cables

» Connecting the telephone cable for FxS interface

VOXELL is shipped with a flat telephone cable, wired on both side with RJ11 muffle.

- Connect the telephone cable with one of the end to the FxS connector, and the other end to the PBX trunk or an analogue phone of PBX exchange.

Telephone set can be used for initiating calls or VOXELL configuration (PIN code inserting).

If the exchange has not the terminal trunk equipped with RJ11 muffle, you can couple the 2 middle wires of telephone cable directly to internal muffle of PBX exchange (the 2 wires of middle).

! VOXELL should not be connected to an ISDN interface of PBX exchange.

! Improper installing the VOXELL equipment might lead to damage of VOXELL or PBX exchange. (If you join a local line of PBX exchange to the FxS connector of VOXELL the both equipment will generate current into the connection cable, in this way VOXELL and PBX exchange may be damage).

» Connecting the telephone cable for FxO interface

- Connect the telephone cable with one of the end to the FxO connector, and the other end to FxO interface of PBX exchange.

! If no restrictions exist for subscriber access rights assigned for extension that VOXELL was installed, any caller of fixed network who rings to the VOXELL number can obtain the access to outgoing trunks. So his calls will be taxed to the owner of PBX exchange.

For avoiding an unpleasant situation you can choose the following solutions.

- configure the PBX exchange to reject the outgoing calls on the extension where VOXELL interface is connected
- set the VOXELL equipment that when it receives a call from mobile network, to automatically direct the call to a specified extension (generally the operator's desk is used)

» Connecting the USB cable

- Connect the USB-B muffle (male) to USB connector (female) of VOXELL, and the other end of cable to the USB-A port of a PC, see the figure 2.

Note: The same USB connection has a double function: for data transfer (connecting to Internet) and for VOXELL configuration by means the OAM application.

» Connecting the power-supply adapter

- Connect the JACK muffle to PWR connector, then plug-in the power supply adapter to the wall outlet (230VAC).

Note: For VOXELL powered you must use only the transformer delivered by the manufacturer. Using the other kind of adapter with different characteristics causes the damage of VOXELL interface.

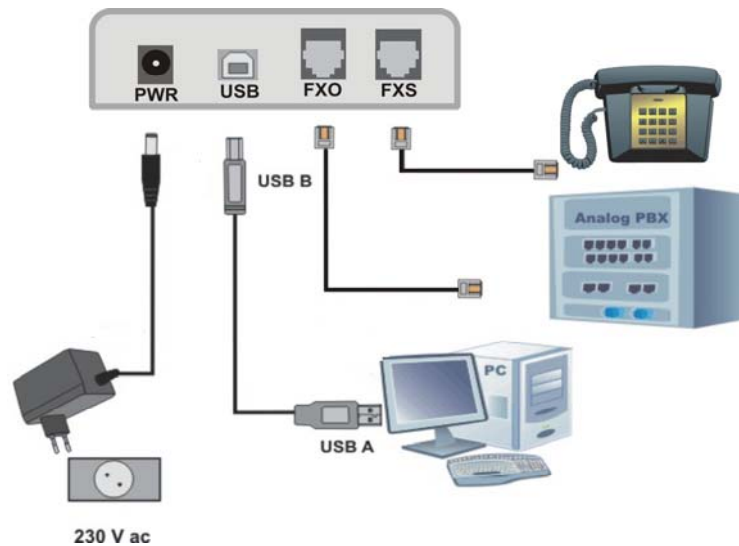


Figure 2: Connecting the cables

» Connecting the antenna

VOXELL package comprises a multiband antenna for GSM/GPRS/3G mobile network.

The antenna has a cable of 2,50 m length and a magnetic base, so it can be installed on any ferromagnetic surface.

! You should fasten the antenna on a safe (with great stability) and flat area, even one that is not magnetic.



The antenna will be threaded to RF connector available on VOXELL (FME male type). This RF connector is on the top side of equipment, the antenna attachment will be done as is shown in the below picture.



Figure 3: Antenna attachment

⚠ Caution! Don't force the fastening of antenna, screw the antenna manually (by hand only). Using a pairs of pliers may lead to damage of antenna thread.

When you install the antenna, be carefully that the chosen place to be suited for the best reception of signal for to the 3G mobile network.

4. VOXELL - MOUNTING

VOXELL will be mounted in a place that allows the maximum reception of 3G networks signal.

VOXELL can be mounted in a vertical position on a wall or in a horizontal position on a desk or a shelf.

VOXELL and its antenna must be positioning at a proper distance for avoiding the interference with others sensitive equipments at radio emissions (PC, monitors, TV set, radio apparatus).

Warning! *GSM/GPRS/3G modem used by VOXELL sends out electromagnetic radiations. Due its dual functioning, as voice interface for exchange and data interface for a PC the emission time will be longer than that from an ordinary mobile phone. Don't stay or work near the VOXELL antenna.*

For mounting the VOXELL on a wall use the assembly kit that was found in the package.

Mounting on a wall:

- Choose the mounting place such as it to be suited with a proper operation and installing and mounting requirements
- Mark on the wall with a pen the holes position, at 55 mm distance
- Make the holes in the wall using a drill press
- Insert the plastic- dowels into the holes
- Thread the metallic screws into the plastic dowels leaving the end to protrude outside for some 5 mm
- Fit the VOXELL case on the wall, and push it slowly, downwards for a good fastening

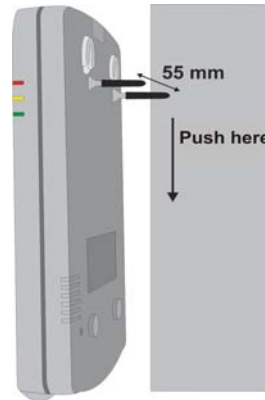



Figure 4: Mounting VOXELL on a wall

Mounting on a desk / shelf

This means placing the VOXELL on a flat surface, that is sure and safety for sustaining the weight of VOXELL and its belongings. A desk, a table or a shelf is suited for mounting VOXELL. For benefit the best performances place the equipment upper in an area without obstacles.

-  Before executing the operations from chapter 5 you must do the followings operations:

 - The USB driver installation USB – launch the „PL-2303 Driver Installer.exe” application (see chapter 6.1.)
 - Install the OAM program from the CD which consorts the equipment! – see the “Operation, Administration and Maintenance Manual” manual.

5. ACHIEVING A VOICE LINK

5.1. Installing on PBX exchange

VOXELL can be connected like that:

- to an analogue trunk of a PBX exchange
- directly to an analogue phone
- to a local interface (office subscriber) of PBX exchange

In this purpose VOXELL has two interfaces with RJ11 connectors, one is for FxO connection and the other for FxS connection.

Only a single of these connectors will be use after a time, do not connect the both interface at the same time.

The interface selection is done through the software application, in this way the both cables of telephone connection may be wired, but only a single interface will be activated by means the software application.

5.2. Connecting to a PBX trunk or a telephone

Use the FxS interface of VOXELL (which must be activated), see the figure 5.

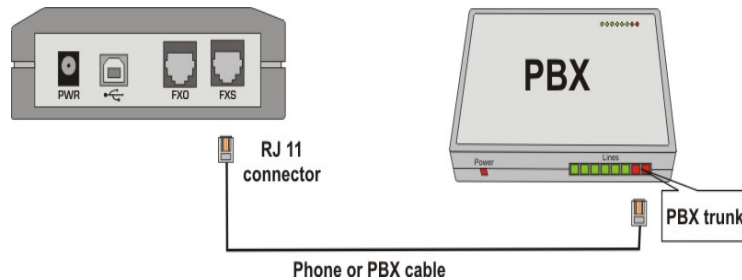


Figure 5: Connecting to a trunk of exchange

Note: For easing the configuration of the equipment, it is recommended a temporary connection of VOXELL to a DTMF telephone that has the capacity to generate „tones“. Also, into the receiver you can hear the alarm tonalities by means which VOXELL informs you about its functioning status or errors warnings.

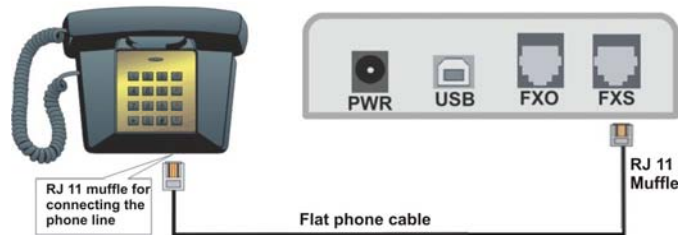


Figure 6: Connecting a DTMF phone

Incoming call

VOXELL interface receives a call over GSM/GPRS/3G network. The equipment sends a call signal to the analogical phone that is connected or to the PBX exchange; in the second variant the exchange switches the call a local subscriber.

Outgoing call

PBX exchange must be configured to output the calls through VOXELL. The user simply dials the wanted number from an office telephone.

PBX exchange processes the number and analyses the prefix and sends it to the outgoing trunk where VOXELL is installed. Then VOXELL transmits the call to the mobile network.

5.3. Connecting to an extension of PBX

For this the FxO interface of VOXELL is used.

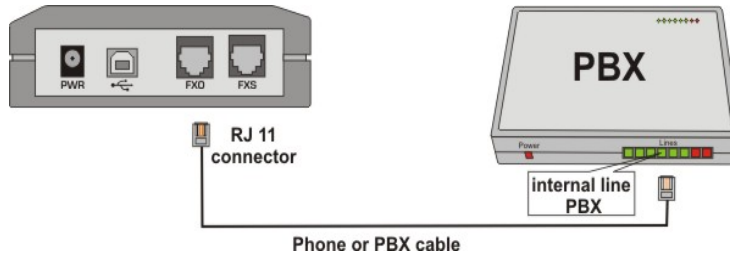


Figure 7: Connecting to an extension

This kind of connection is very useful especially when there are no available analogue trunks: for instance PBX exchange is entirely configured as ISDN type or PBX exchange has not free analogue trunk (all of them are busy).

Incoming call

- on DISA (Direct Inward Service Access)

A call from mobile network is received.

VOXELL answers and opens a local line. The PBX exchange generates a dial tone. On this tone, the caller dials the number: an internal or external number (see the chapter 5.6.).

The PBX exchange routes this call in the same way how treats any call came from a local subscriber.

- **on automatically routing to a specified extension**

A call over mobile network is received

VOXELL answers and opens a local line. The PBX exchange generates a dial tone. On this tone, VOXELL assigns it a specified local extension (programmable). The engaged extension rings and the calling, over mobile network is established. The local extension can be, for instance, the operator panel who directs manually the incoming calls.

Outgoing call

The user dials the number of local interfaces, where VOXELL is connected.

VOXELL answers and generates dial tone. After the recovering this tone, the caller dials the number of mobile network subscriber.

VOXELL transmits the reading and makes the link with mobile network.

You have the option „ON or OFF for audibly tone for dialing“. In this last case the VOXELL equipment do not offers audibly tone, but takes over and sends the detected digits.

VOXELL can be configured thus to modify or to add a prefix to the received figures. Configured in this way VOXELL assures a more efficient routing – for instance you must not form the prefix 021.

A voice link can be initiated in the moment when VOXELL generates dial tone (continuously tone, frequency 450 Hz).

The telephone apparatus, extension or exchange trunk can send to VOXELL the call in DTMF mode or PULSE mode. If the number of digits is smaller than number of figures that are waiting for by VOXELL (programmable parameter), then, after a 5 seconds delay, the call is transferred to 3G modem.

If you want to send immediately the call, after the last digit press "#".

5.4. Achieving test calls

It is recommended to make first some test call, for verifying if VOXELL equipment operating correctly.

For VOXELL connected to PBX trunk

Incoming call

Ring, from outside, to the SIM number used by VOXELL. Interface diverts the call and sends the ringing signal to trunk of PBX exchange. The operator answers and transfers the call.

Outgoing call

The PBX exchange must be configured to route special outgoing numbers (for instance the prefixes of mobile, such as 072x) towards the trunk assigned to VOXELL interface.

Dial the number of mobile network subscriber, the call will be sent from exchange to VOXELL, which achieves the link over mobile network.

For VOXELL connected to PBX extension

Incoming call

Ring, from outside, to the number of the SIM used by VOXELL. The Topex interface answers and retransmits the call to exchange. Exchange will offer the dial tone and you can call the wanted local extension, or an outgoing number (see the chapter 5.6.). The PBX exchange achieves the call.

Outgoing call

Call the extension of PBX where VOXELL is installed. The interface answers, and depending on your configuration you will hear the dial tone or nothing. Now dial the wanted number and VOXELL makes the connection.

5.5. Inserting the PIN or PUK code

When you insert the SIM card and it has activated the “PIN Code Request”, at start up VOXELL will send the stored PIN code. If the stored PIN code doesn't match, the equipment goes in stand-by and waits the new PIN code to be insert from the phone interface. After the audio signal you can insert the right PIN code. If the PIN code is sent wrong for 3 times, the SIM card will request you PUK code.

It is used an analogue phone, which is connected to the VOXELL through the FxS interface. The phone must allow you to dial digits in DMTF mode (tones). Also the FxS interface must be activated.

Alternatively, if the VOXELL equipment is connected to a PBX trunk, dial the code, which allows you to force the engaging of that trunk. When the equipment is connected through an FxO interface, you will dial the extension number for a connection with the equipment. In both cases the tones that you hear and the mode how you insert the codes are the same as when you use a phone, which is directly connected to VOXELL.

Inserting the PIN code:

- wait the tone signal, which request the PIN code
- the numbers which are allowed are between 0 and 9 (you can't used also * and #)
- the code must have minimum 4 (four) and maximum 8 (eight) figures
- if the PIN code which you want to insert has less than 8 numbers, after you insert it press # to validate it. If the code has 8 numbers it will be automatically send.

Inserting the PUK code:

- wait the tone signal, which request the PUK code
- the figures that are allowed are between 0 and 9
- insert the PUK code and then press #
- if the option “ Change PIN code” is not set then you must insert the new PIN code, previously described.

Note: Normally, after you enter the PUK code you must insert the new PIN code (what do you wish). If the option “Change PIN code” is enabled the TOPEX equipment will generate automatically a new PIN code, so you don't have to do anything. If this option is not enabled then you must enter a new PIN code.

If the PIN code was successfully insert you should hear an 3G registration tone (the GSM/GPRS/3G module has get the PIN code and waits for registration over the 3G network)

If the PIN code was wrong insert then you should hear a warning tone and after that the PUK code request.

5.6. Cautions:

a) Interferences:

Some types of phone exchanges are more sensible to the radio-frequency interferences, which might cause some noises. In this situation you have to place the VOXELL equipment as far as you can from the PBX exchange.

b) Unauthorized access

When the VOXELL equipment is connected with the FxO interface to a number from inside and uses the DISA working mode, is possible unauthorized access from outside. When there are no restrictions regarding the access rights of the extension which VOXELL is connected, anyone who calls the mobile number of the VOXELL from a public network will get the right to access the out lines of the PBX exchange.

To avoid this thing you have 2 possibilities:

1. Configure the phone exchange to reject the out calls, which are initiated from inside where the VOXELL interface is connected.
2. If the exchange cannot be configured in that way, then set the VOXELL equipment not to offer a DISA tone, when a mobile phone call is arriving instead of offering the DISA tone the VOXELL will call to the operator.

6. CONFIGURING AN INTERNET CONNECTION

To configure an Internet connection you have to follow these steps:

- The installation of the USB driver on your PC
- The installation of the GSM/GPRS/3G modem driver on the PC
- Configure an access connection to the Internet on the PC
- Specify the initialization AT commands (for dial-up)
- Connect to the Internet

Warning! *The mobile phone number used by the connection, the name of the user and the password, and also the AT commands are depending on the mobile phone network operator. The following examples are for the Vodafone Romania network!*

- Check if the VOXELL equipment is properly connected with the PC and is powered up;
- First you have to install the USB driver for the VOXELL equipment. This interface can be used for data transfer and also for configuring the equipment (with the OAM application). There is an executable that automatically installs the USB driver. The executable name is "**PL-2303 Driver Installer.exe**".
- Then you have to install the 3G modem, on the COM serial port. The modem driver is named: **mdmtopep.inf** (for Huawei) or **mdmtopeps.inf** (for Sierra), depending on your internal modem type. Check if the modem works!
- Create a dial-up connection for the mobile network. The connection must specify the mobile number, *99**1#, the user name and the password used for log-in ("internet" and respective "vodafone"). Also, the modem must be configured with an initialization command (an additional AT command). This command is: `at+cgdcont=1, "ip", "internet.vodafone.ro"`. This command must be insert in the "Extra Settings" window, from Modem>Properties>Advanced.

Note: For Sierra module when edit the AT command must use caps lock. Also the "vodafone" will be replaced with your's mobile operator name: AT+CGDCONT=1, "IP", "INTERNET_PROVIDER"

- Finally you can connect to the Internet using the Dial-Up connection.

CONFIGURING AN INTERNET CONNECTION UNDER Windows XP

6.1. The USB driver installation

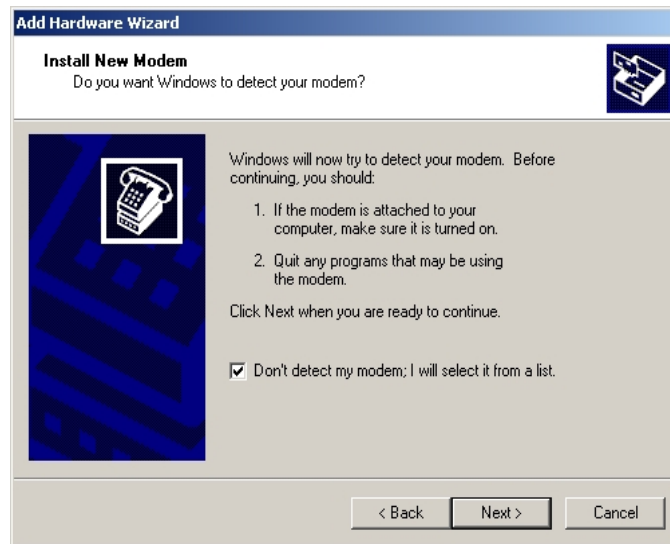
Before you plug the USB cable connected to VOXELL into the PC, you should install the USB driver. Do not let the operating system detect automatically new hardware equipment, install it yourself. For this, insert the floppy disk or CD supplied by Topex into the drive and start the application „PL-2303 Driver Installer.exe“. This is found in the folder called „Driver_usb“.

Now you have finished the procedure of USB driver installation.

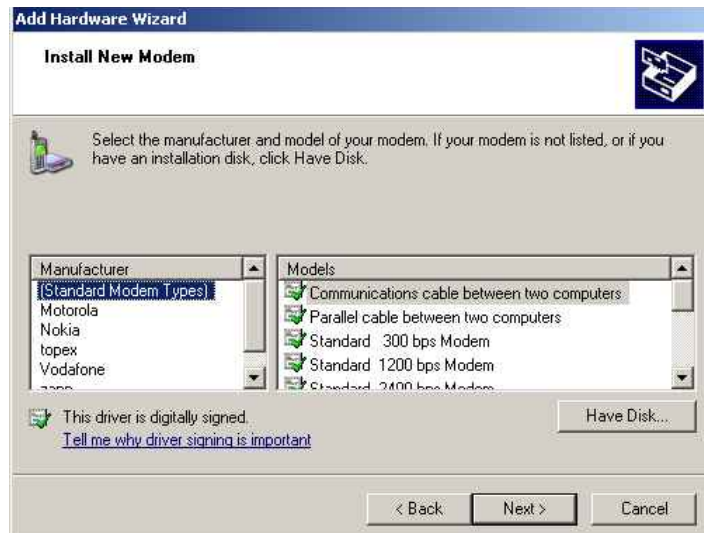
Note: *The same driver for USB is also needed for connecting the OAM application to the VOXELL equipment. The OAM program is used for configuring and managing VOXELL, and also to send or receive SMS.*

6.2. Manually install of the modem driver

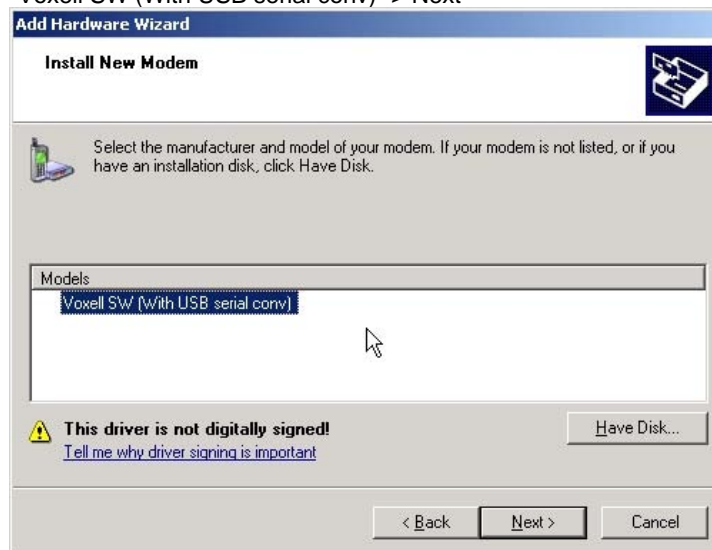
Enter “Control Panel” > select “Phone and Modem Options” > press on the “Modems” tab > Select “Add” > Check “Don’t detect my modem; I will select it from a list” >



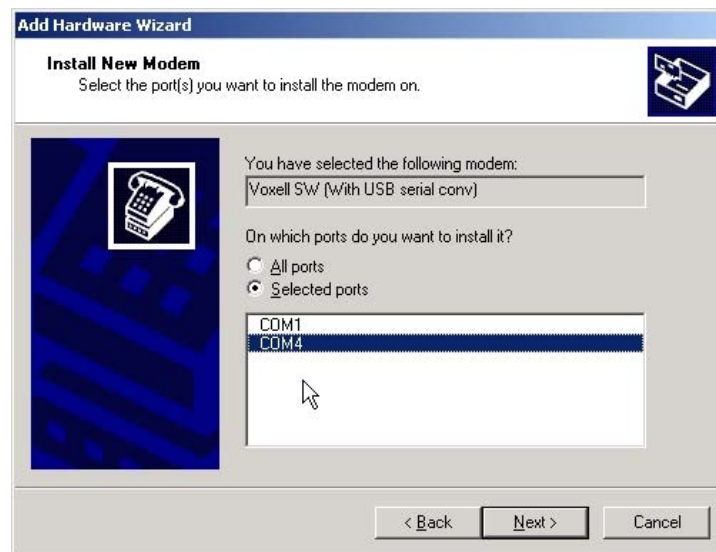
Click “Next” to continue ...



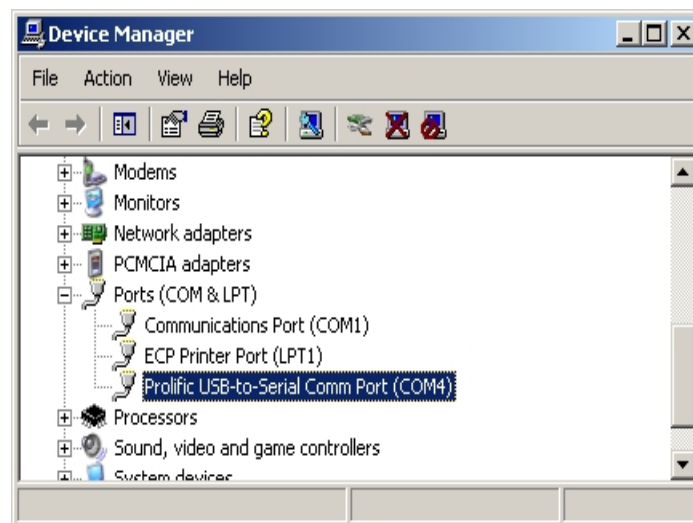
Select "Have Disk" > Select the location of the modem driver (it is driver is on the floppy-disk or CD shipped in the VOXELL package,in the folder "Driver_modem") > Open > OK > Select "Voxell SW (With USB serial conv)" > Next



Windows warns you that „This driver is not digitally signed!“, Click Next to continue,



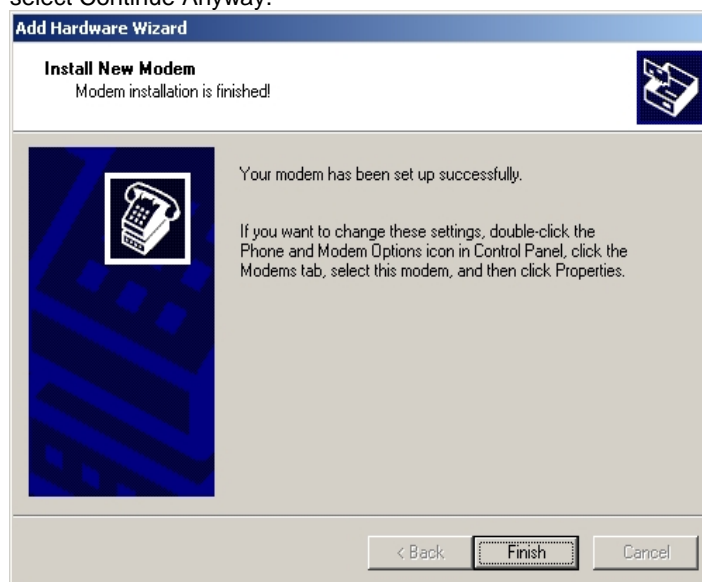
Select the installed port of the USB driver, such as COM4 in the above example (To get this information go to Device Manager and press on the "+" symbol at "Port (COM & LPT)" > Next



Then the PC informs you that Microsoft did not check the driver; to insure you about the compatibility with Windows XP („Windows Logo Testing”), select Continue Anyway.

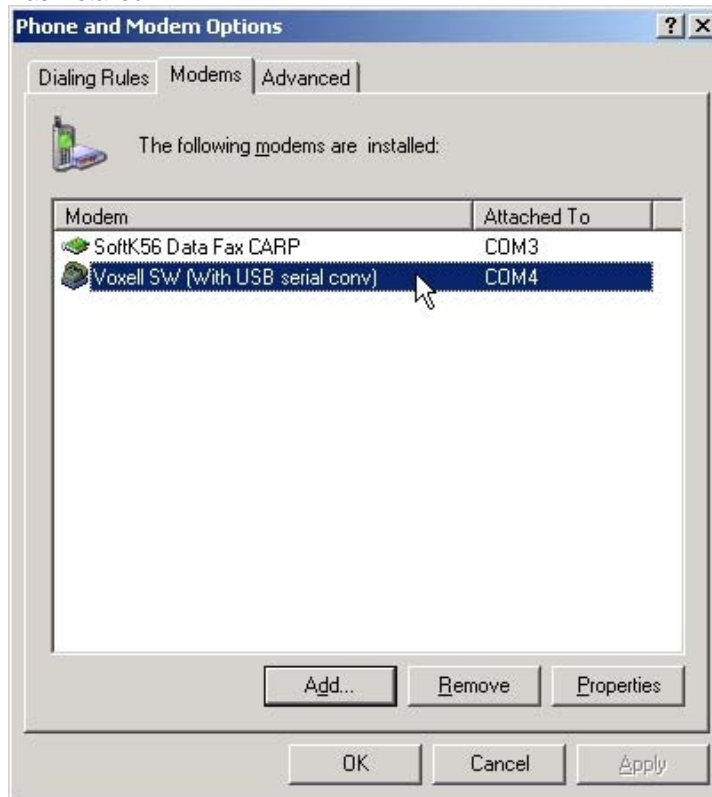


select Continue Anyway.



The installation of the Voxell SW 3G modem has successfully ended and to finish this wizard press Finish.

If the modem was successfully installed it should appear in the "Phone and Modem Options" window with the port number where it was installed.

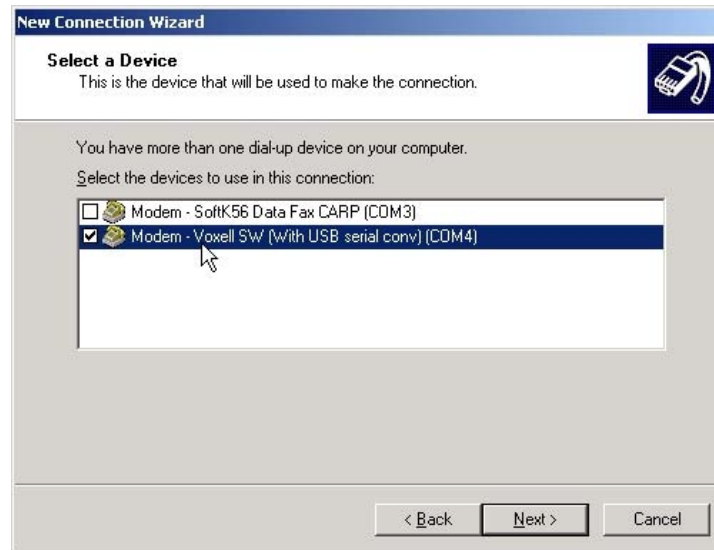


In the above example there is a phone modem on COM3 and the Voxell SW modem on COM4, but the figures for your actual connections may be different.

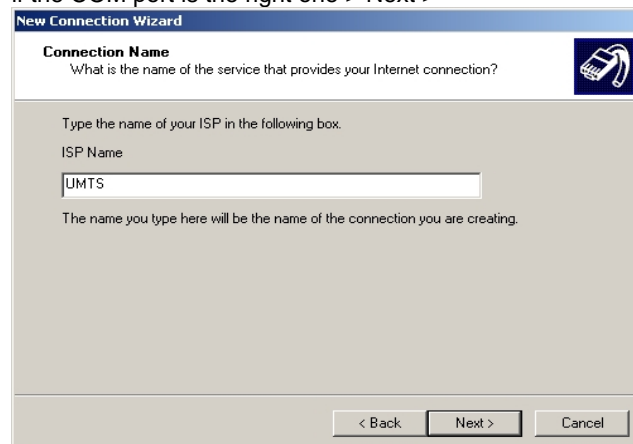
Note: Remember that you have to memorize **the name of the VOXELL modem and the port**, because you gone use this information when you will perform the Dial-Up connection. Also, the same COM port number will be used for the connection to the OAM program.

6.3. Setting up an Internet connection

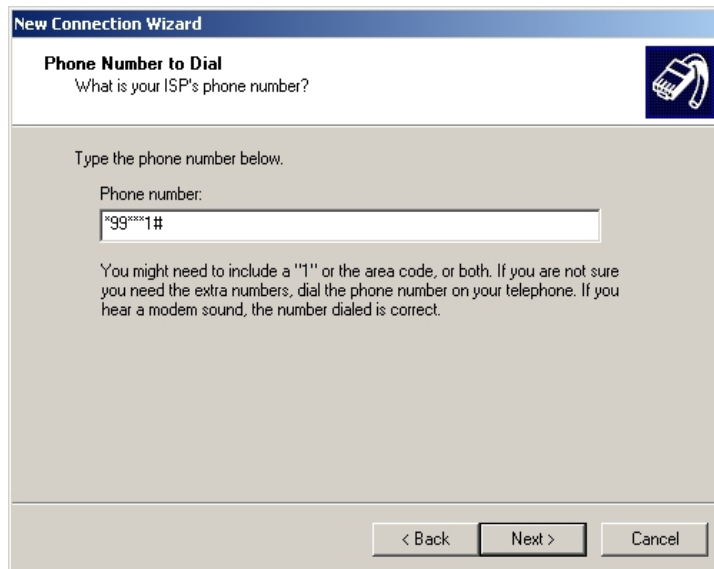
Enter "Network Connections" (Start > Programs > Accessories > Communications > Network Connections) > Press "Create a new connection" > Next > Check "Connect to the Internet" > Next > Check "Set up my connection manually" > Next > Check "Connect using a dial-up modem" > Next >



From the list with the modems attached to your computer, select "Modem – VOxell SW (With USB serial conv) (COM 4)" and check if the COM port is the right one > Next >

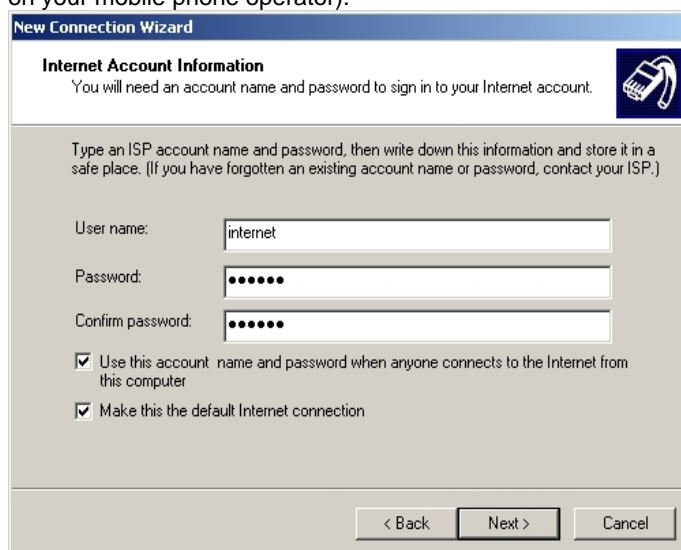


Insert the name of your Internet connection, such as “UMTS” in our example. Next>



The screenshot shows the 'New Connection Wizard' window with the 'Phone Number to Dial' step. The title bar says 'New Connection Wizard'. Below the title bar, the section is 'Phone Number to Dial' with a sub-header 'What is your ISP's phone number?'. There is a telephone icon in the top right corner. The main area says 'Type the phone number below.' followed by 'Phone number:' and a text box containing '*99***1#'. Below the text box, there is a note: 'You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.' At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

In the “Phone Number” field, insert “*99***1#” > Next >
(The mobile number used must have a specific format, depending on your mobile phone operator).



The screenshot shows the 'New Connection Wizard' window with the 'Internet Account Information' step. The title bar says 'New Connection Wizard'. Below the title bar, the section is 'Internet Account Information' with a sub-header 'You will need an account name and password to sign in to your Internet account.' and a telephone icon in the top right corner. The main area says 'Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)'. There are three text boxes: 'User name:' with 'internet', 'Password:' with '*****', and 'Confirm password:' with '*****'. Below these are two checkboxes: 'Use this account name and password when anyone connects to the Internet from this computer' and 'Make this the default Internet connection', both of which are checked. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

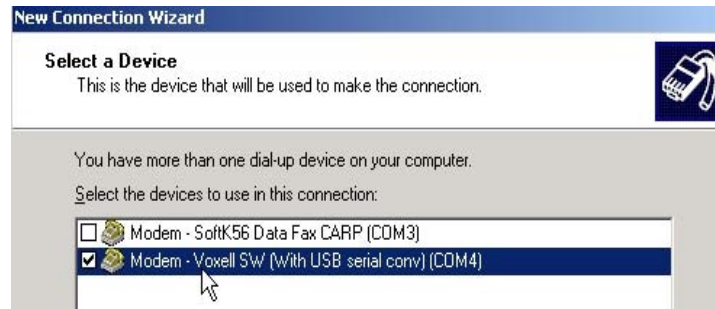
In the "User name" field write "internet" > In the "Password" field and respective "Confirm password" field write "operator's name" > Next > Finish.



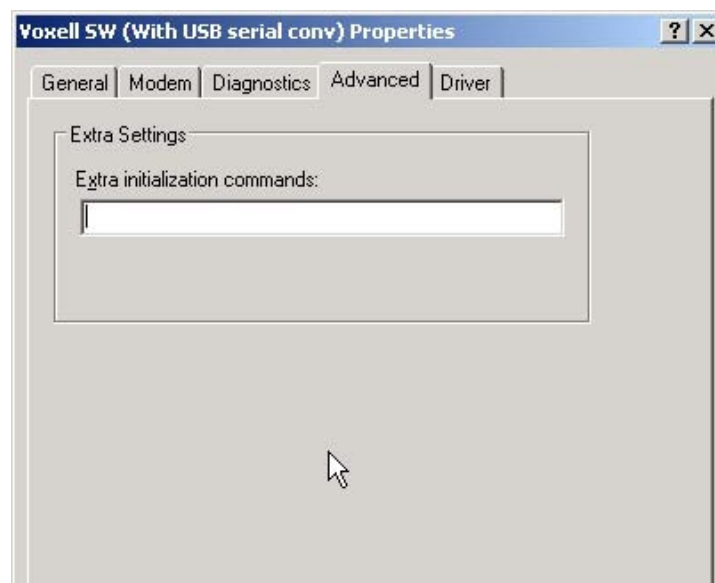
In this moment you have created an Internet connection, and to finish this wizard press the "Finish" button.

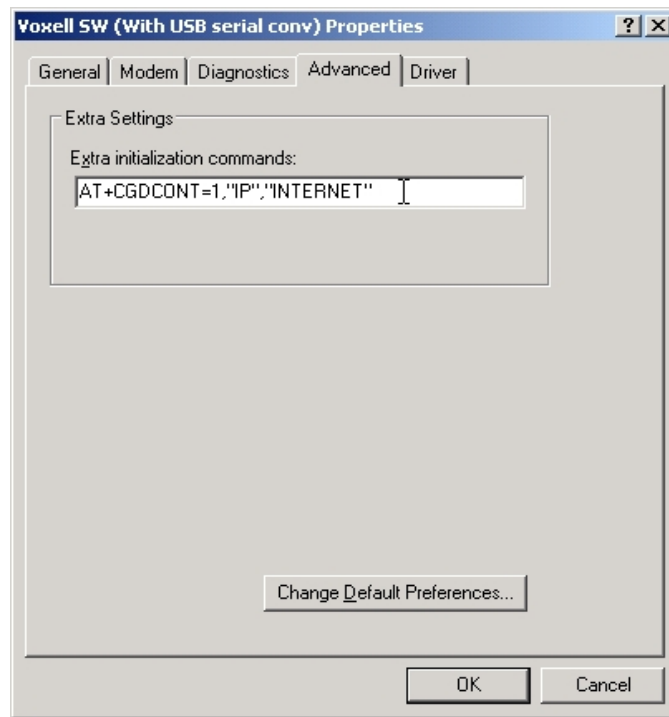


Also, the 3G modem must be configured with some initialization commands (An additional AT command), depending on the mobile phone operator.



From "Control Panel" select "Phone and Modem options" and select the again VOXELL modem (in the current example Voxell SW and the COM 4 port respectively). Press on Properties and then the "Advanced" tab.





In the “Extra initialization commands:” window, insert the following command for instance:

at+cgdcont=1,“ip”,“internet.operator`s name” or

AT+CGDCONT=1,“IP”,“INTERNET_OPERATOR”

then confirm all by pressing “OK”.

In this moment you have finished to install the Internet connection for the VOXELL equipment.

6.4. Connecting to Internet

Use the connection you created before.

Enter "Network Connections" (Start > Programs > Accessories > Communications > Network Connections) and select your connection and press ENTER > In the "User name" field insert "internet", at "Password" „operator's name" and in the "Dial" field enter the following number "*99***1#" > Dial > A window named "Connecting to UMTS" must appear on your screen, which informs you that the equipment is connecting to Internet.

Open a browser (such as Internet Explorer) and surf on the Internet!

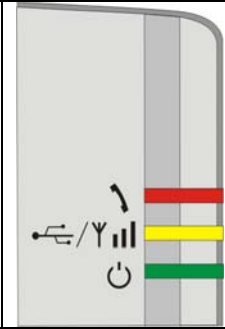
7. MONITORING THE FUNCTION STATUS

7.1. The LED's significance

The equipment has three status LED's. There are marked with the following signs:

- (1) A phone handset
- (2) Symbols for USB/antenna/signal level
- (3) A symbol of the power button

The optical indicators are located on the right side of the VOXELL, and their colors are red, orange and green (as shown in the drawing to the right)



Significance of the red LED

This LED indicates the operating status of the VOXELL equipment and the existence of a voice connection.

STATUS	DESCRIPTION
Red symmetrical blinking, at 1 second interval	At start, blinking at 500 ms on, 500 ms off shows that the GSM/3G module is in the initialization phase.
Red symmetrical blinking, at 320 ms interval	In the initialization phase the equipment waits the PIN code. You can insert this code from the phone which is connected at the FxS interface. If the LED blinks at 160 ms on, 160 ms off, it means that the SIM card has activated the "PIN code request" option, and the PIN code is different than the stored value. In this moment the VOXELL equipment switch in the wait status.
Red symmetrical blinking, at 160 ms interval	VOXELL requests the PUK code and the LED blinks very fast. If the PIN code was wrong insert for 3 times, the equipment asks the PUK code. The LED blinks very fast: 80 ms on, 80 ms off
Light off	The module has successfully registered in the network, and the phone interface is in stand-by (there is not voice connection)
Light up continuous	The phone interface is functioning; the voice connection exists or is in the initialization phase.

Note: If the call number is sent in "PULSE" mode, the Status LED will blink, showing the dialing of each digit.

Significance of the yellow LED

This LED has three significances, by means of number of blinks, duration and polarity. It provides information about the mobile phone network (registering, signal level and type – 2G or 3G) and also about activity of the USB port (data transfer).

STATUS	DESCRIPTION
Number of blinks per period	Blinks once – 3G module is not registered to the mobile network! Blinks twice – module registered, no data is transmitted Blink three times – module registered, data transmission in progress.
Duration of blinking	Indicates the signal level: the longer the blink is, the stronger signal you have (120ms= less than -96dBm, 240ms= -96 ... -85dBm, 400msec=over-85dBm)
Polarity of blinking	Indicates the type of the mobile network Lights up for short period (normal, positive blinking) – registered to 3G network Lights off for short period (negative, reverse blinking)– registered to 2G network Note: In case of the 2G networks the on/off ratio is the reverse of the one for 3G networks. Thus, the stronger signal you have, the shorter the duration that the LED is on will be.
Permanently on or off	It indicates an error, in normal operation the LED should always blink!

Significance of the green LED”

The green LED indicates that Topex equipment is powered (monitors the voltage of +5V cc).

STATUS	DESCRIPTION
Green, light up	There is power supply of +5Vcc
Light off	There is no power supply

7.2. Tonalities

VOXELL also signals the function status and the errors by means of some audible tones, which can be heard in the handset of the connected phone.

If the control module of the equipment does not communicate with the GSM/GPRS/3G modem or if the mobile phone module has no network signal, VOXELL generates a warning tone. The tone is represented by a 440 HZ signal: 200 ms tone, 100 ms pause, 200 ms tone, 500 ms pause.

Tonalities	Significance
200 ms tone, 100ms pause, 200 ms tone, 500 ms pause	The GSM/3G module is initializing or not registered
80 ms tone, 80 ms pause	The SIM card requests the PIN code
80 ms tone, 80 ms pause, 80 ms tone, 80 ms pause, 80 ms tone, 1500 ms pause	The SIM card requests the PUK code
160 ms tone, 160 ms pause	Busy tone

If the SIM card has activated the request for PIN, when the equipment starts it send the recorded PIN code. If the sent code is not the same, the equipment goes into a wait status and signals this with a sound. Now you may enter the PIN code from the phone keyboard. The connection of the phone is achieved through the FxS interface (check if the FxS is activated). If the PIN code was incorrectly entered for three times then it locks up. You must enter the PUK code to unlock (this phase is also signaled with tone, as shown in the above table).

8. VOXELL - CONFIGURING

VOXELL can be configured with the OAM program, which is supplied on the CD or floppy disk.

The OAM program allows you to configure the GSM/GPRS/3G module and the FxO and FxS phone interfaces (parameter setting)

- **IN**, input: if the module has activated this option, the calls to the GSM/GPRS/3G module will be sent through the FxS or FxO interface, in this mode the calls will be rejected by the GSM/3G module.

- **OUT**, output - if the module has activated this option, the user can initiate a call to the mobile network through the GSM/GPRS/3G module

- **CLIR** – when this feature is activated, the ID number will not be send over the mobile network.

- **„Change PIN code”**: if this feature is activated, the equipment generates a new PIN code, known only by the user. When VOXELL equipment starts, after the old PIN code is insert the equipment will generate a new code. In this way the user makes sure that the SIM card can be used by others equipments.

The details regarding the configuring of 3G module can be found in the OAM manual of the VOXELL product.

9. TECHNICAL SPECIFICATIONS

Mobile phone networks	GSM/GPRS: 900/1800 MHz UMTS / HSDPA: 2100 MHz
Maxim output power RF	0,2 W
Network services	Voice, data, SMS GPRS data: class GPRS 10, type B 3G data: PS, speed 384 Kbps Download and 128 Kbps Upload
Analog FxS voice port	Connector RJ 11
Analog FxO voice port	Connector RJ 11
Data port	USB B, version 1.1
External antenna	Multiband, for GSM/GPRS/3G
Signaling LED's	Status, Data Link, Power
Power supply	12 VDC / 2,08 A 230 VAC / 0,3 A / 50 Hz
Dial tone	450Hz \pm 10%
Line voltage	48Vcc \pm 10%
Line current	30 mA max.
Ring signal	25 Hz, min. 65 V
Impedance	600 Ω
Dimensions (L x l x H)	222 x 115 x 32 mm
Weight	Max 500g – VOXELL 1 kg – whole package

10. ENVIRONMENTAL AND OPERATING CONDITIONS

VOXELL equipment must be installed in closed rooms, which follow these environment conditions:

- Operating temperature 5 to 50 °C
- Humidity 10 to 90%, without condense

The equipment must not be installed outside!

Also VOXELL will not be installed in flammable or explosive environments.

VOXELL must not be used in environments with high vibrations.

Use any kind of radio equipments can interfere with the medical equipments function, which are not enough protected. Also other equipments can suffer because of VOXELL equipment interferences.

VOXELL must not be mounted in environments with strong electromagnetic interferences, like: Xerox, monitors display, electrical motors.

It must not be stored in environment with extreme temperatures. When VOXELL unit is moved from cold environments to warm environments, the equipment must not be start immediately. It must be let half an hour to accommodate with the new temperatures, else condensation may occur.

The mounting place will be selected according to conditions from installation chapter. The location must have full signal from the mobile network for the external antenna.

When is functioning, the equipment must be protected from dust and solar radiations.

The equipment clean up will not be made with aggressive substances. Also the equipment must be manipulated with care, avoiding mechanical shocks.

VOXELL does not contain any kind of polluting materials or dangerous parts.

When you open up the equipment, first you have to pull up the power supple jack before you disconnect the antenna or the others cables.

10. APPLICATIONS

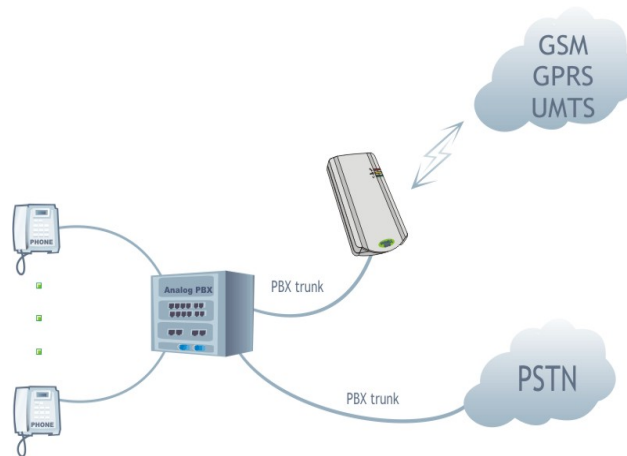
a. Voice/Data interface between a PBX, a PC and the GSM/GPRS/3G network

VOXELL creates a direct voice connection between a private exchange and the 3G mobile phone network. It may be connected on an analog trunk of the exchange or to a local subscriber and offers the possibility to call directly in the mobile network from all the local extension, thus avoiding so the national fixed telephone operator.

Using the PBX exchange option to route automatically the calls depending on the prefix, any call to a GSM or 3G telephone will be transmitted through the trunk that has installed the VOXELL equipment. In this way you will pay only a mobile-to-mobile call.

Also, any phone call initialized from a mobile phone to a local subscriber of the PBX will be billed like a mobile-to-mobile call and not like a mobile-to-fix call.

To VOXELL you can also connect a PC, through the USB port, offering you a high-speed wireless Internet connection.

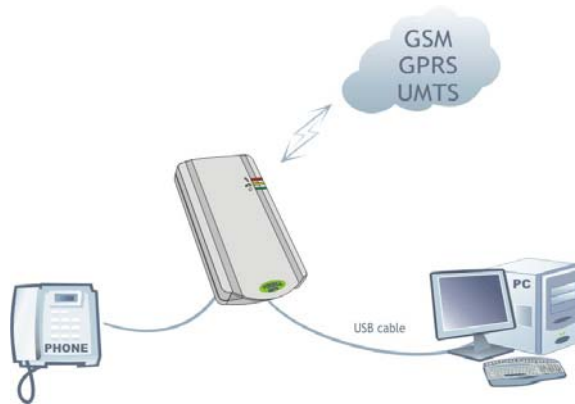


This application is addressed to small or middle business companies that have a high inside telephone traffic to the mobile GSM/GPRS/3G network and want to cut down the telephone costs. Also, the users can benefit from the wireless Internet connection in the 3G network.

b. Voice/Data interface between a fixed telephone, a PC and the mobile GSM/GPRS/3G network

VOXELL creates a directly voice connection between an analog (standard) phone and the GSM, GPRS or 3G mobile network. In this case the Topes interface has connected the phone cable to give access to the mobile network.

Also, for any phone call initiated from a mobile phone to the VOXELL number you can call the fix phone from home.



To the VOXELL unit you can also connect a PC, via USB, port for a high-speed connection to the Internet, without any kind of cable connection.

This application is addressed to private persons or companies that which don't have a landline telephony connection. In this way they can use the fixed phone to call any number from the mobile network (GSM/GPRS/UMTS).

As extra bonus, they have a high-speed connection to the Internet through the 3G network.

Both options are indicated for temporally events (cultural events, sporting competitions, trade fairs and exhibitions, festivals, etc). Even if the location is not isolated, with classic telephone lines there is not profitable to create a fixed connection for such a short period of time.

By using the VOXELL 3G voice and data interface you have an efficient alternative to the classic wired connections.

11. Glossary

DISA – Acronym for **Direct Inward System Access**. This function allows an outside caller to directly access a local subscriber of the phone exchange by using DTMF codes. The typical application is when you call directly a local subscriber without need for a human operator at the phone exchange. VOXELL makes use of DISA to route the calls, for example allowing a local subscriber to dial (using DTMF codes) a mobile number via VOXELL.

DTMF – Acronym for **Dual Tone Multi Frequency**, also known as "touch tone". Advanced method for dialing a number, instead of the older PULSE mode. When you press a key on the keypad a combination of two audio frequencies is sent on the line. DTMF capability is important because it allows access to a wide range of interactive voice applications. VOXELL uses DTMF dialing to transmit the numbering from local subscribers to the mobile networks.

I.T.U. – Acronym for International Telecommunication Union Standardization, Section Telecommunications.

PBX - Acronym for Private Branch eXchange. The PBX is a small, private version of the larger central switching office of the phone company. A PBX is a **private** telephone switch. It is connected to groups of lines (junctions) from one or more central offices and to all of the telephones at the location (subscribers, extensions) served by the PBX. Current exchanges are in fact PABX, automated PBX, which don't require a human operator to route the calls..

USB – Acronym for Universal Service Bus. A high-speed port, which allows serial communication of several peripheral unit. It can be mounted up to 127 peripheral unit to a PC.

The manufacturer reserves the right to modify the product and manual for the purpose of technical improvement without prior notice. The manufacturer guarantees the good functioning of the product provided that it has been correctly installed and the directives for storage and usage have been respected. The warranty implies exclusively repairing or replacing the defective unit. The warranty does not include any indirect losses or loss of profit. The manufacturer is not liable for any damage, whether direct, indirect, special, incidental, or consequential, as a result of using **VOXELL**.

No part of this manual may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of the company TOPEX S.A.

We certify hereby that the VOXELL unit is manufactured in concordance with the legal provisions concerning responsibility towards the quality of delivered products, fulfills the quality parameters specified in its "User's manual" and is fit for the purpose for which it has been designed. We also warrant that the equipment will perform substantially in accordance with the accompanying documentation.

Any comments, suggestions and proposals of yours concerning our products are welcome and we are gladly waiting for your feedback at the following address.